



Chapter Two **AVIATION DEMAND FORECASTS**

AVIATION DEMAND FORECASTS



Facility planning must begin with a definition of the demand that may reasonably be expected to occur at the facility over a specific period of time. For the Colorado City Municipal Airport, this involves forecasts of aviation activity indicators through the year 2020. In this master plan, forecasts of based aircraft, based aircraft fleet mix, and annual aircraft operations will serve as the basis for facility planning.

It is virtually impossible to predict with certainty year-to-year fluctuations of activity when looking twenty years into the future. Because aviation activity can be affected by many influences at the local, regional, and national level, it is important to remember that forecasts are to serve only as guidelines and planning must remain flexible enough to respond to unforeseen facility needs.



The following forecast analysis examines recent developments, historical information, and current aviation trends to provide an updated set of aviation demand projections for Colorado City Municipal Airport. The intent is to permit the Town of Colorado City to make the planning adjustments necessary to ensure that the facility meets projected demands in an efficient and cost effective manner.

NATIONAL AVIATION TRENDS

Each year, the Federal Aviation Administration (FAA) publishes its national aviation forecast. Included in this publication are forecasts for air carriers, regional air carriers, general aviation, and military activity. The forecasts are prepared to meet budget



and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and the general public. The current edition when this chapter was prepared was *FAA Aviation Forecasts - Fiscal Years 1998-2009*. The forecast uses the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

For the U.S. aviation industry, the outlook for the next twelve years is for moderate economic growth, low to moderate inflation, and constant real fuel prices. Based on these assumptions, aviation activity by fiscal year 2009 is forecast to increase by 18.9 percent at combined FAA and contract towered airports and 24.6 percent at air route traffic control centers. The general aviation active fleet is projected to increase by 12.5 percent while general aviation hours flown are forecast to increase by 18.1 percent.

GENERAL AVIATION

By most statistical measures, general aviation recorded its third consecutive year of growth. Following more than a decade of decline, the general aviation industry was revitalized with the passage of the General Aviation Revitalization Act in 1994 (federal legislation which limits the liability on general aviation aircraft to 18 years from the date of manufacture). This legislation sparked an interest to renew the manufacturing of general aviation

aircraft due to the reduction in product liability and a renewed optimism for the industry. The high cost of product liability insurance was a major factor in the decisions by many American aircraft manufacturers to slow or discontinue the production of general aviation aircraft.

According to the General Aviation Manufacturers Association (GAMA), aircraft shipments and billings grew for the third consecutive year in 1997, following fourteen years of annual declines. In 1997, general aviation aircraft manufacturers shipped a total of 1,569 aircraft totaling \$4.7 billion. For 1997, aircraft shipments were up 38.8 percent and billings up 49.5 percent over 1996. In 1996, general aviation aircraft manufacturers shipped a total of 1,130 aircraft totaling \$3.1 billion.

For 1997, piston engine aircraft shipments were up 64.2 percent and turbine engine aircraft shipments up 10.2 percent. Single-engine piston aircraft recorded the single largest gain, growing 70.8 percent in 1997 while turboprop aircraft shipments increased 44.4 percent. Multi-engine piston aircraft shipments grew 14.3 percent. Only turboprop aircraft registered a decline in shipments in 1997 (18.3 percent).

Despite a small decline in the number of active pilots, student pilot starts were up 1.3 percent in 1997, following a 6.3 percent decline in 1996. These student pilots are the future of general aviation and are one of the key factors impacting the future direction of the general aviation industry. This increase

combined with the increases in piston-powered aircraft shipments and aircraft production are a signal that many of the industry initiated programs to revitalize general aviation maybe taking hold.

The most notable trend in general aviation is the continued strong use of general aviation aircraft for business and corporate uses. According to the FAA, general aviation operations and general aviation aircraft handled at en route traffic control centers increased for the sixth consecutive year, signifying the continued growth in the use of the more sophisticated general aviation aircraft. In 1996 (the latest year of recorded data), the number of hours flown by the combined use categories of business and corporate flying represented 22.5 percent of total general aviation activity. In 1990, the number of hours flown by the combined use categories of business and corporate flying represented 21.8 percent of total general aviation activity.

Manufacturer and industry programs and initiatives continue to revitalize the general aviation industry. The newest program "GA Team 2000" has the goal of 100,000 annual student pilot starts by the year 2000. The New Piper Aircraft company has created Piper Financial Services (PFS) to offer competitive interest rates and/or leasing of Piper aircraft.

The most striking industry trend is the continued growth in fractional ownership programs. Fractional ownership programs allow businesses and individuals to purchase an interest in an aircraft and pay for only the time that they use the aircraft. This has

allowed many businesses and individuals, who might not otherwise, to own and use general aviation aircraft for business and corporate uses. Aircraft manufacturers Raytheon, Bombardier, and Dassault Falcon Jets have all established fractional ownership programs. Industry leader Executive Jet Aviation has expanded their program to include Boeing Business Jets and Gulfstream.

Exhibit 2A depicts the FAA forecast for active general aviation aircraft in the United States. The FAA forecasts general aviation active aircraft to increase at an average annual rate of 1.0 percent over the next 12 years, increasing from 187,312 in 1996 to 212,960 in 2009. Over the forecast period, the active fleet is expected to increase by almost 2,000 annually (considering approximately 2,000 annual retirements of older piston aircraft and new aircraft production at 4,000 annually). Turbine-powered aircraft are projected to grow faster than all other segments of the national fleet and grow 2.2 percent annually through the year 2008. This includes the number of turboprop aircraft growing from 5,309 in 1996 to 6,482 in 2009 and the number of turbojet aircraft increasing from 4,287 in 1996 to 6,228 in 2009. Amateur built aircraft are projected to increase at an average annual rate of 1.1 percent over the next twelve years, increasing from 16,198 in 1996 to 18,622 in 2008.

POPULATION PROJECTIONS

Population growth provides an indication of the potential for sustaining

growth in aviation activity over the planning period. Historical and forecast population for Colorado City and Hildale are summarized in **Table 2A**. Between 1980 and 1997, Colorado City's population increased by more than 2,400 and averaged an annual growth rate of 5.9 percent. Colorado City's population is projected to grow at an average annual rate of 2.4 percent

through the year 2020 when the population is expected to reach 6,626. Between 1980 and 1997, the population of Hildale, Utah increase by more than 1,100 and averaged an annual growth rate of 4.5 percent. The Hildale population is expected to reach 3,614 by the year 2020 (an average annual growth rate of 2.3 percent).

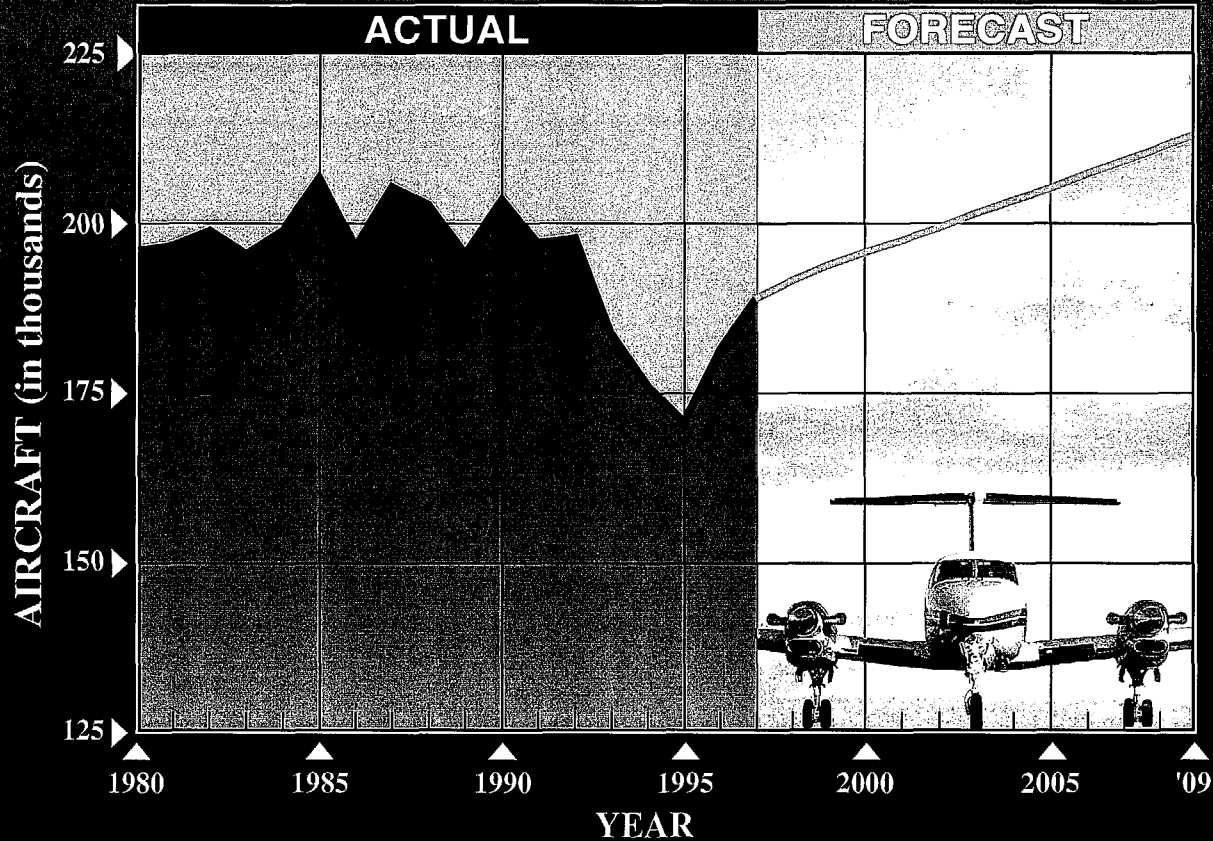
TABLE 2A		
Historical and Forecast Population		
Year	Colorado City	Hildale
Historical		
1980	1,439	1,009
1990	2,434	1,325
1997	3,860	2,126
Forecast		
2000	4,150	2,291
2005	4,863	2,732
2010	5,500	3,016
2015	6,072	3,315
2020	6,626	3,614
Source: Arizona Department of Economic Security, Five County Association of Governments		

FORECASTING APPROACH

The development of aviation forecasts proceeds through both analytical and judgmental processes. A series of mathematical relationships are tested to establish statistical logic and rationale for projected growth. However, the judgment of the forecast analyst, based upon professional experience, knowledge of the aviation industry, and their assessment of the local situation, is important in the final determination of the preferred forecast.

It is important to note that one should not assume a high level of confidence in forecasts that extend beyond five years. Facility and financial planning usually require at least a ten-year preview, since it often takes more than five years to complete a major facility development program. However, it is important to use forecasts which do not overestimate revenue-generating capabilities or understate demand for facilities needed to meet public (user) needs.

ACTIVE GENERAL AVIATION AIRCRAFT



U.S. ACTIVE GENERAL AVIATION AIRCRAFT (in thousands)

As of January 1	FIXED WING				ROTORCRAFT				
	PISTON		TURBINE		ROTORCRAFT		Experimental	Other	Total
	Single Engine	Multi- Engine	Turboprop	Turbojet	Piston	Turbine			
1997	136.7	15.8	5.3	4.4	2.4	4.0	16.4	4.2	189.3
2000	141.2	16.0	5.5	4.9	2.3	4.2	17.1	4.3	195.6
2003	145.3	16.2	5.8	5.4	2.2	4.4	17.7	4.4	201.4
2006	149.5	16.5	6.1	5.8	2.2	4.5	18.1	4.5	207.2
2009	153.7	16.6	6.5	6.2	2.1	4.6	18.6	4.6	212.9

Source: FAA Aviation Forecasts, Fiscal Years 1998-2009.

Notes: Detail may not add to total because of independent rounding. An active aircraft must have a current registration and it must have been flown at least one hour during the previous calendar year.

COLORADO CITY
MUNICIPAL AIRPORT

A wide range of factors are known to influence the aviation industry and can have significant impacts on the extent and nature of air service provided in both the local and national market. Technological advances in aviation have historically altered, and will continue to change, the growth rates in aviation demand over time. The most obvious example is the impact of jet aircraft on the aviation industry, which resulted in a growth rate that far exceeded expectations. Such changes are difficult, if not impossible to predict, and there is simply no mathematical way to estimate their impacts. Using a broad spectrum of local, regional and national socioeconomic and aviation information, and analyzing the most current aviation trends, forecasts are presented in the following sections.

AIRPORT SERVICE AREA

The local airport service area is defined by the proximity of other airports and the facilities that they are able to provide to general aviation aircraft. General aviation service areas are very closely defined as the result of nearby airports providing similar aircraft tiedown, fuel, and hangar services. The Inventory Chapter detailed three airports within 30 nautical miles of Colorado City Municipal open to public use (St. George, Hurricane, and Kanab). These airports provide a wide range of tiedown, fuel, hangar, and general aviation services. Considering that the services at each airport vary to local conditions (hangar, fuel, and tiedown rates, hangar availability, etc.), the service area for Colorado City Municipal Airport is not considered to exactly

follow the boundaries of any jurisdictional unit, and is affected by many of the factors detailed above.

A review of aircraft ownership for based aircraft at Colorado City Municipal Airport was made to determine the existing service area for based aircraft demand. Using based aircraft records provided by the airport manager (summarized in Appendix D), it was determined that the all existing based aircraft owners are located in either the Town of Colorado City or City of Hildale, Utah. Therefore, it can be assumed that the existing service area for Colorado City Municipal Airport is limited to Town of Colorado City and City of Hildale, Utah.

As in any business enterprise, the more attractive the facility is in services and capabilities, the more competitive it will be in the market. As the level of attractiveness expands, so will the service area. If an airport's attractiveness increases in relation to nearby airports, so will the size of the service area. The unavailability of T-hangar space can be attributed to the limited service area of Colorado City Municipal Airport. If adequate facilities are constructed and rates and fees are competitive at Colorado City Municipal Airport, some level of general aviation activity might be attracted to the airport from surrounding airports.

AVIATION ACTIVITY FORECASTS

To determine the types and sizes of facilities that should be planned to accommodate general aviation activity,

certain elements of this activity must be forecast. Indicators of general aviation demand include: based aircraft, the based aircraft fleet mix, annual operations, and peak activity. The remainder of this chapter will examine historical trends with regard to these areas of general aviation and project future demand for these segments of general aviation activity at the airport.

BASED AIRCRAFT PROJECTIONS

The number of based aircraft is the most basic indicator of general aviation demand at an airport. By first developing a forecast of based aircraft, the growth of aviation activities at the airport can be projected.

Table 2B summarizes historical based aircraft at Colorado City Municipal Airport and historical registered aircraft in Mohave County. As evidenced in the table, based aircraft totals have remained relatively static at the airport since 1992, fluctuating between a low of 10 to a high of 12 aircraft.

Contrastingly, Mohave County registered aircraft have steadily increased each year since 1992. Between 1992 and 1997, Mohave County total registered aircraft increased by 75 aircraft, primarily due to growth in the western portion of the county at Lake Havasu and Laughlin/Bullhead City. In fact, registered aircraft growth in the county has surpassed the levels forecast in the *1995 Arizona State Aviation Needs Study* (SANS). The 1995 SANS forecast 214 registered aircraft in Mohave

County in the year 2000, 242 in 2005, 271 in 2010, and 298 in 2015.

Due to the dramatic growth of Mohave County registered aircraft and the relatively static based aircraft totals at Colorado City Municipal Airport, the percent of Mohave County registered aircraft based at Colorado City Municipal Airport has declined over this period.

For planning purposes, the present growth rate of Mohave County registered aircraft was extrapolated through the year 2020 to provide a basis for a market share analysis. Assuming that the airport's share of Mohave County registered aircraft remained static, or at the 1997 level of 4.0 percent, would yield 24 based aircraft by the end of the planning period. Based upon forecast local and regional population and economic growth, it is likely that the airport's share of Mohave County registered aircraft will increase through the planning period. An increasing market share of Mohave County registered aircraft yields 30 based aircraft by the end of the planning period.

A second forecasting technique examined historic per capita based aircraft totals of the combined population of Colorado City and Hildale. As evidenced in **Table 2C**, the ratio of aircraft to residents in Colorado City and Hildale has increased since 1990. Consistent with this trend, a forecast of based aircraft has been developed assuming a continuation of an increasing ratio of based aircraft per 1,000 residents.

TABLE 2B**Historical and Forecast Based Aircraft and Mohave County Registered Aircraft**

Year	Mohave County Registered Aircraft ¹	Colorado City Municipal Airport Based Aircraft ²	Percent of Mohave County Registered Aircraft Based At Colorado City
HISTORICAL			
1992	172	10	5.8
1993	174	11	6.3
1994	178	N/A	--
1995	198	12	6.0
1996	221	N/A	--
1997	247	10	4.0
FORECASTS			
Constant Market Share			
2000	280	11	4.0
2005	360	14	4.0
2010	440	18	4.0
2015	570	20	4.0
2020	590	24	4.0
Increasing Market Share			
2000	280	12	4.2
2005	360	16	4.4
2010	440	20	4.6
2015	570	24	4.8
2020	590	30	5.0
¹ Source for Historical Data: ADOT; Forecasts by Coffman Associates			
² FAA 5010 Master Record Form			

TABLE 2C**Aircraft Per 1,000 Residents**

Year	Based Aircraft	Colorado City and Hildale Residents	Aircraft per 1,000 Residents
1990	6	3,759	1.59
1997	10	5,986	1.67
Forecasts			
2000	12	6,441	1.8
2005	15	7,595	2.0
2010	19	8,516	2.2
2015	23	9,387	2.4
2020	27	10,240	2.6

Presented in **Table 2D** is a summary of all forecasts for based aircraft at Colorado City Municipal Airport and the selected planning forecast. The planning forecast reflects the airport capturing a larger portion of regional aviation markets over the planning period. Continued local and regional

economic and population growth supports the long-range potential for based aircraft growth at the airport. The planning forecast projects based aircraft at Colorado City Municipal Airport growing at an average annual rate of 4.9 percent.

TABLE 2D						
Based Aircraft Forecast Summary						
	Forecasts					
	1997	2000	2005	2010	2015	2020
<i>Market Share of Mohave County Registered Aircraft</i>						
Constant Market Share		11	14	18	20	24
Increasing Market Share		12	16	20	24	30
<i>Aircraft Per Capita Approach</i>						
Colorado City and Hildale Residents		12	15	19	23	27
<i>Planning Forecast</i>	<i>10</i>	<i>12</i>	<i>16</i>	<i>20</i>	<i>25</i>	<i>30</i>

FLEET MIX PROJECTION

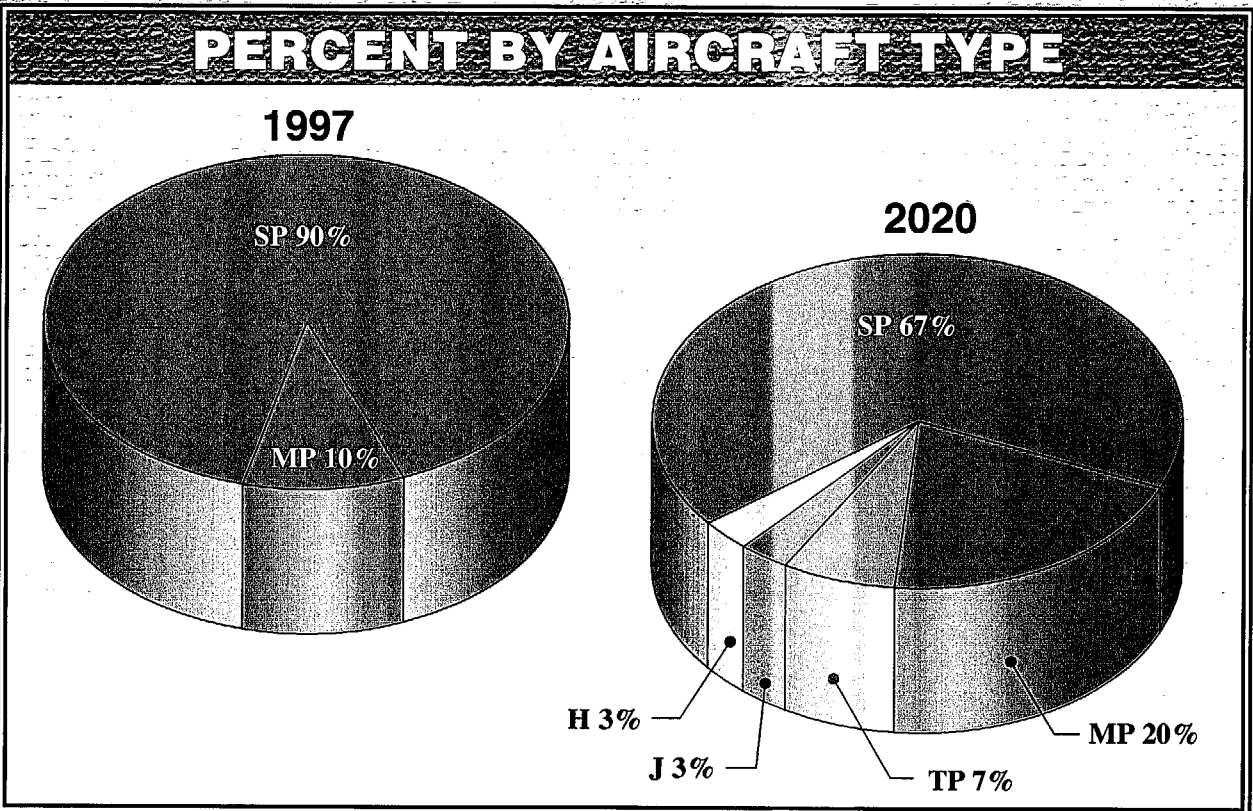
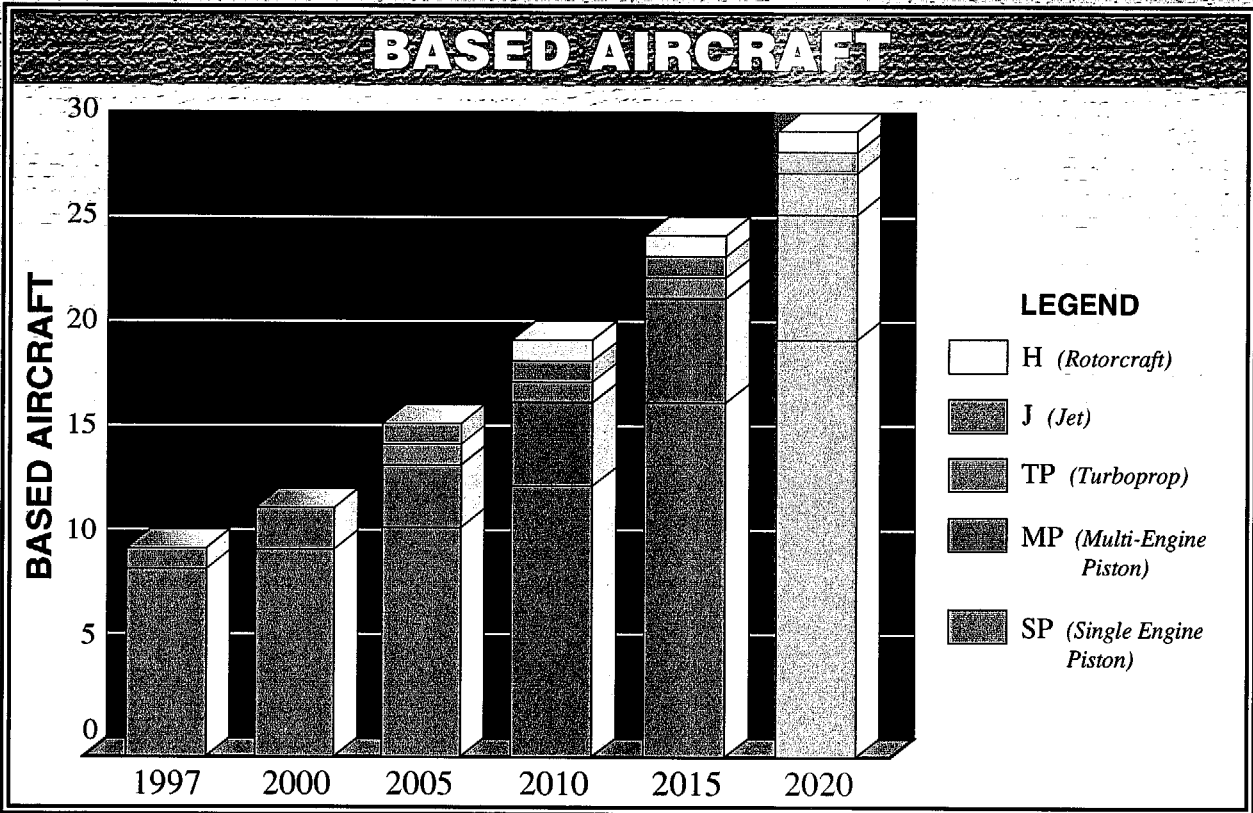
Knowing the aircraft fleet mix expected to utilize the airport is necessary to properly plan facilities that will best serve the level of activity and type of activities occurring at the airport. The existing based aircraft fleet mix is comprised primarily of single-engine piston aircraft, but also includes one multi-engine piston aircraft. Similar to total based aircraft, the mix of based aircraft has remained relatively static since 1992 with 9 single-engine piston aircraft and one to two multi-engine piston aircraft based at the airport each year.

As detailed previously, the national trend is towards a larger percentage of sophisticated aircraft and helicopters in

the fleet mix. Growth within each category at the airport has been determined by comparison with national projections, which reflect current aircraft in production. The fleet mix of based aircraft for existing and future years has been reflected in **Table 2E** and on **Exhibit 2B**.

ANNUAL OPERATIONS

There are two types of operations at an airport: local and itinerant. A local operation is a take-off or landing performed by an aircraft that operates within site of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Itinerant operations are those performed by aircraft with a specific



origin or destination away from the airport. Generally, local operations are characterized by training operations. Typically, itinerant operations increase

with business and industrial use since business aircraft are used primarily to carry people from one location to another.

TABLE 2E Based Aircraft Fleet Mix Forecast						
		Piston		Turbine		
Year	Total	Single	Multi	Turboprop	Turbofan	Helicopter
Historical						
1997	10	9	1	0	0	0
Forecasts						
2000	12	10	2	0	0	0
2005	16	11	3	1	1	0
2010	20	13	4	1	1	1
2015	25	17	5	1	1	1
2020	30	20	6	2	1	1

Due to the absence of an air traffic control tower at the airport, aircraft operations have not been regularly counted. Instead, only general estimates of activity are available. Historical operational estimates for the airport have been recorded on the *FAA 5010-1 Airport Master Record Form* and are summarized in **Table 2F**. As shown in the table, annual operations have doubled since 1990.

For purposes of this forecasting effort, military operations are included within the general aviation forecasts due to their small number annually. Military operations consist of itinerant helicopter training operations.

Projections of annual operations at Colorado City Municipal Airport have been prepared by examining the number of operations per based aircraft. As shown in **Table 2F**, the operations per based aircraft increased between 1990 and 1997.

Two forecasts of operations per based aircraft have been developed. First, a constant, or static level of 300 operations per based aircraft was applied to forecast based aircraft. This results in an operational level of 9,000 in 2020. An increasing number of operations per based aircraft was developed to account for the local trend of a growing number of operations per based aircraft. This results in an operational level of 13,500 in 2020.

The FAA projects the number of hours flown by general aviation aircraft to increase an average annual rate of 1.4 percent per year over the next twelve years. The projected increase in aircraft utilization results in an increase in the number of general aviation hours flown and consequently the number of operations. Therefore, the increasing number of operations per based aircraft forecast appears to be more indicative of future growth.

TABLE 2F**Historical Annual Operations and Operations Per Based Aircraft**

Year	Based Aircraft	Total Annual Operations	Operations Per Based Aircraft
1990	6	1,500	250
1997	10	3,000	300
Forecasts			
Constant Number of Operations per Based Aircraft			
2000	12	3,600	300
2005	16	4,800	300
2010	20	6,000	300
2015	25	7,500	300
2020	30	9,000	300
Increasing Number of Operations per Based Aircraft			
2000	12	3,900	325
2005	16	5,600	350
2010	20	7,500	375
2015	25	10,000	400
2020	30	13,500	450
Source for historical data: FAA 5010 Airport Master Record Form			

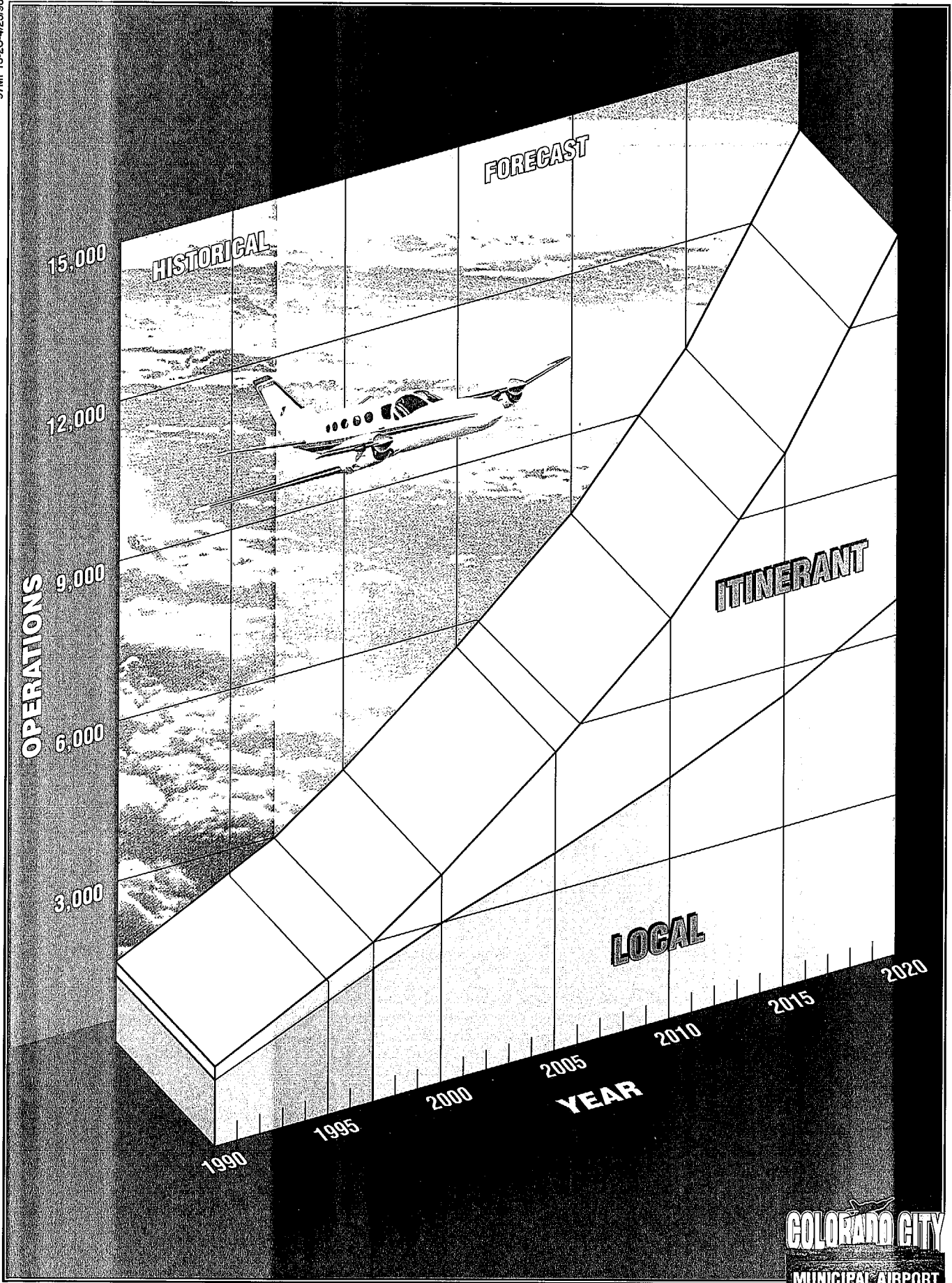
The *FAA 5010-1 Airport Master Record Form* has historically indicated that local operations have accounted for a larger percentage of total annual operations than itinerant operations, as aircraft from St. George have historically used Colorado City Municipal Airport for training. As mentioned previously, the national trend is for increased utilization of general aviation aircraft for business and corporate uses. This results in greater number of itinerant operations at an airport since business and corporate flying carries people and passengers from one location to another. Consistent with this national trend and the growing local economy, which should generate additional air traffic at the airport, itinerant operations are forecast to increase through the

planning period (in number and as a percentage of total annual operations). The projection of local and itinerant operations are summarized in **Table 2G** and depicted on **Exhibit 2C**.

PEAKING CHARACTERISTICS

Many airport facility needs are related to the levels of activity during peak periods. The periods used in developing facility requirements for this study are as follows:

- **Peak Month** - The calendar month when peak aircraft operations occur.



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TABLE 2G**Local and Itinerant Operations Forecasts**

Year	Annual Operations	Local Operations	Itinerant Operations
<i>Historical</i>			
1990	1,500	1,250	250
1997	3,000	2,500	500
<i>Forecasts</i>			
2000	3,900	3,000	900
2005	5,600	3,700	1,900
2010	7,500	4,500	3,000
2015	10,000	5,500	4,500
2020	13,500	6,700	6,800
Source for historical data: <i>FAA 5010 Master Record Form</i>			

- **Design Day** - The average day in the peak month. This indicator is easily derived by dividing the peak month operations by the number of days in a month.
- **Busy Day** - The busy day of a typical week in the peak month.
- **Design Hour** - The peak hour within the design day.

It is important to note that only the peak month is an absolute peak within a given year. All other peak periods will be exceeded at various times during the year. However, they do represent reasonable planning standards that can be applied without overbuilding or being too restrictive.

Adequate operational information is not available to directly determine peak aviation activity at the airport. Therefore, peak period forecasts have been determined according to trends experienced at similar airports across

the county. Typically, the peak month for activity at general aviation airports approximates 10-12 percent of the airport's annual operations. Peak month operations have been estimated as 12 percent of annual operations. Typically, busy days are figured at 25-30 percent above the average day in the peak month. A factor of 1.3 has been applied to the average (design) day figures to provide a busy day operations number. Since actual hourly peak information was not available, it was estimated at 15 percent of busy day operations. The peaking characteristics are summarized in **Table 2H**.

COMMERCIAL AIR SERVICE POTENTIAL

Colorado City Municipal Airport has never been served by scheduled airline service. The extended drive times to airports with commercial air service (St. George and Las Vegas), and the growing regional population and economy have the potential to attract

air service. Considering the proximity of Colorado City to Las Vegas, Nevada; Phoenix, Arizona; and Salt Lake City, Utah, any potential airline service

would likely be commuter/regional type airline service serving one of these regional airline hub airports.

TABLE 2H						
Forecasts of Peak Activity						
	1997	2000	2005	2010	2015	2020
Annual Operations	3,000	3,900	5,600	7,500	10,000	13,500
Peak Month	360	470	670	900	1,200	1,600
Design Day	12	16	22	30	40	53
Busy Day	16	21	27	39	52	69
Peak Hour	2	3	4	6	8	10

An airline's decision to enter a market is purely a business decision based on the potential passenger market. Without a history of air service at Colorado City Municipal Airport it is difficult to estimate the local air passenger market. However, examining similar airports and communities with existing scheduled airline service could provide an indication of the potential passenger market.

A number of communities in northern Arizona and southern Utah presently have scheduled airline service. The closest community is St. George, Utah. With more than 40,000 residents, St. George had 30,913 enplanements in 1996. Cedar City, Utah, with 17,811 residents, had 6,055 enplanements in 1996. Bryce Canyon, Utah, (located in southwest Garfield County) had 4,415 enplanements in 1996 (the total Garfield County population is approximately 4,200). With 8,640 residents, Page, Arizona, had 16,736 enplanements in 1996. Kingman, Arizona, with 18,425 residents, had 1,602 enplanements in 1996.

With a combined 5,900 residents, it would appear that the combined Colorado City/Hildale community is below the population threshold demonstrated by these communities to sustain scheduled aircraft service. Considering that the combined Colorado City/Hildale population is projected to grow to over 10,000 by 2020, it is possible that the local community could be considered for scheduled airline service during the planning period of this master plan.

Accommodating scheduled air service to Colorado City would require a considerable commitment on the part of the Town of Colorado City. Colorado City would need to pursue FAR Part 139 certification from the FAA (which would require Airport Rescue and Firefighting capability and full-time airport personnel) and larger apron and terminal facilities. The local community would likely need to provide marketing and/or subsidies to attract scheduled air service.

The Colorado City/Hildale population and proximity to St. George are viewed as the primary factors limiting the potential for scheduled air service. Should the community be able to attract scheduled air service, it is likely that a large number of potential local air passengers would still choose to drive to St. George and even Las Vegas International Airport rather than flying directly to or from the Colorado City Municipal Airport. The most important factors in creating and sustaining scheduled air service is the frequency of service and air fares. Competitive air fares would attract travelers who might otherwise choose to drive to regional airports, while frequency of service would make travel convenient and efficient.

ANNUAL INSTRUMENT APPROACHES

An instrument approach as defined by the FAA is "an approach to an airport with the intent to land by an aircraft in accordance with an Instrument Flight Rule (IFR) flight plan, when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude." To qualify as an instrument approach at Colorado City Municipal Airport, aircraft must land at Colorado City Municipal Airport after following the nondirectional beacon instrument approach procedures established for airport.

No historical annual instrument approach data for Colorado City Municipal Airport is available from the FAA. Therefore, a projection of annual instrument approaches has not been

prepared. Annual instrument approach levels can be estimated, however, based on trends experienced at similar airports. Normally, annual instrument approaches account for one to two percent of total itinerant operations. For Colorado City Municipal Airport, this equates to approximately 5 to 10 annual approaches based upon 1997 itinerant operational estimates. Applying this same percentage to forecast itinerant operations in 2020 provides a range of 68 to 136 annual instrument approaches by the end of the planning period.

SUMMARY

This chapter has provided forecasts for each sector of aviation demand. These forecasts are essential to the effective analysis of future facility requirements. The next step in the study is to assess the capacity of existing facilities to accommodate forecast demand and determine which facilities will need to be improved to meet these demands. The aviation demand forecasts have been summarized in **Table 2J**.

At the request of ADOT Aeronautics, cargo potential at Colorado City Municipal has been examined. The air cargo industry includes a diverse range of businesses providing a variety of different services supporting the movement of freight by air. This includes the all-cargo airlines, passenger airlines, freight forwarders and customs brokers, and air freight truckers. Considering that many of the integrated all-cargo carriers (FedEx, UPS, Airborne Express) have established a network of distribution

hubs at major metropolitan areas near Colorado City, it appears that the potential for all-cargo carriers using the airport is limited and would most likely include feeder service to these existing distribution stations using general aviation aircraft. This type of service does not require dedicated facilities as cargo is typically transferred directly from the aircraft to vehicles on the apron.

Specialized air cargo shipments are a factor of local community manufac-

turing and business needs for air shipping. To reduce shipping costs, most specialized air cargo is combined through freight forwarders in large metropolitan areas and flown on chartered aircraft. While the potential does exist for specialized air cargo shipments at Colorado City Municipal Airport, such as financial documents, most manufacturing and large cargo shipments are limited since the airport cannot accommodate the large transport aircraft typically used for specialized air cargo shipments.

TABLE 2J
Forecasts Summary

	Forecasts					
	1997	2000	2005	2010	2015	2020
Annual Operations						
Itinerant	500	900	1,900	3,000	4,500	6,800
Local	<u>2,500</u>	<u>3,000</u>	<u>3,700</u>	<u>4,500</u>	<u>5,500</u>	<u>6,700</u>
Total	3,000	3,900	5,600	7,500	10,000	13,500
Based Aircraft	10	12	16	20	25	30